

ABSTRACT OF THE DISCLOSURE

A method of forming a polysilicon thin film transistor is disclosed in the present invention. The method includes forming a buffer layer on a transparent substrate, forming an amorphous silicon layer on the buffer layer, crystallizing the amorphous silicon layer into a polysilicon layer using a sequential lateral solidification (SLS) method, patterning the polysilicon layer to form a polysilicon active layer, performing a rapid thermal annealing (RTA) process to the polysilicon active layer under a H<sub>2</sub> atmosphere, performing a rapid thermal oxidation (RTO) process to form a silicon-oxidized layer on the polysilicon active layer after the RTA process, and forming a metal layer over the transparent substrate to cover the silicon-oxidized layer.